



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,853	05/15/2001	Stefan J. Murry	PAT013	1173

27543 7590 08/21/2003

APPLIED OPTOELECTRONICS, INC.
13111 JESS PIRTLE BLVD.
SUGAR LAND, TX 77478

EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT	PAPER NUMBER
----------	--------------

2828

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/855,853

Applicant(s)

MURRY ET AL. *CK*

Examiner

Armando Rodriguez

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48-71 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 48-62 and 64-71 is/are rejected.
- 7) ☒ Claim(s) 63 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 19, 2003 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 48-61 and 64 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 48 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: applicant has failed to define the plurality of alignment features which performs the recited function of "securing the at least one surface-emitting laser from movement in the x direction and in the y direction".

Regarding claim 64,

Applicant has failed to define the structurally the plurality of alignment features, thereby it is not clear within the claim how the surface emitting laser is mounted on the recited features.

Claim Rejections - 35 USC § 102

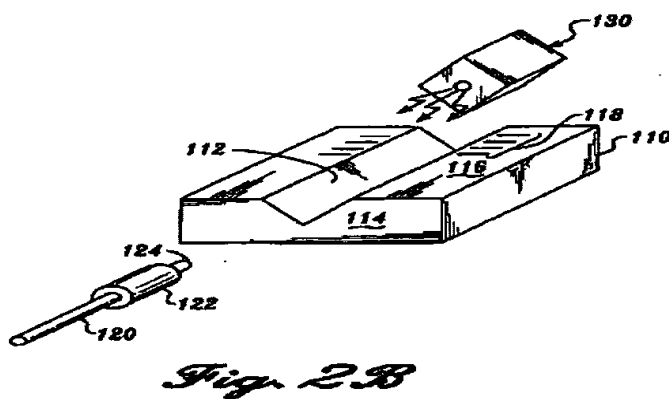
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 62,64,70 and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Beranek et al (PN 5,896,481).

In figure 2B Beranek et al illustrates a silicon optical bench (110) having an etched groove (112) for mounting and aligning a vertical cavity surface emitting laser (VCSEL) with an optical fiber (120), which receives the emitting laser beam of the VCSEL. The emitted beam is parallel with the optical bench and is directly coupled with optical fiber.



Art Unit: 2828

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 65-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beranek et al (PN 5,896,481) in view of Wu et al (US 2002/0037137) and Ota et al (PN 5,986,790).

Regarding claim 65,

In figure 2B Beranek et al illustrates a silicon optical bench (110) having an etched groove (112) for mounting and aligning a vertical cavity surface emitting laser (VCSEL) with an optical fiber (120), which receives the emitting laser beam of the VCSEL. The emitted beam is parallel with the optical bench and is directly coupled with optical fiber.

Beranek et al does not disclose an array of lasers and optical receivers.

In figure 6 Wu et al illustrates an array of vertical cavity surface emitting lasers (21) mounted on a slot (11) (not shown see figure 2 and an array of optical fibers (30), where the lasers and the fibers are all mounted on a silicon substrate. The lasers emit a light, which is optically coupled to the edge of the fiber.

Therefore, it would have been to a person having ordinary skill in the art at the time the invention was made to duplicate the alignment structure of Beranek et al as

Art Unit: 2828

taught by Wu et al to obtain an array of VCSEL aligned with optical fibers for receiving the emitted laser beam.

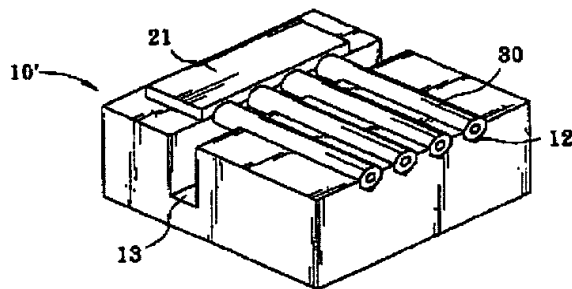
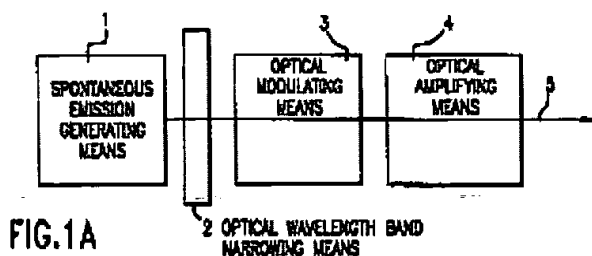


FIG. 6

Regarding claims 66-69,

Beranek et al does not disclose coupling modulators, amplifiers and SOA with the array of lasers.

Coupling of optical modulators, optical amplifiers or any other optical element within a laser system is well known in the laser art and would be within the level of skill of any person having ordinary skill in the art, which understands the scientific and engineering principles applicable to the claimed invention, as shown in figure 1A of Ota et al where a laser is optically coupled to a modulating means and an amplifying means.



Art Unit: 2828

Allowable Subject Matter

Claim 63 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the cited references alone or in combination discloses the structural combination of independent claim 62 with dependent claim 63, where the edge-receiving optical device is monolithically fabricated on the optical bench substrate.

The cited prior arts disclose the receiving optical fiber as a separate element from the optical bench.


Claim 48 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

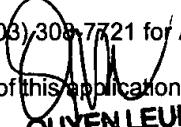
Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-4881.


Armando Rodriguez
Examiner
Art Unit 2828


QUYEN LEUNG
PRIMARY EXAMINER


Paul Ip
Supervisor
Art Unit 2828

AR/PI
August 7, 2003